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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,735	08/01/2003	Loren M. Caldwell	410391	3863
30955	7590	06/24/2004	EXAMINER	
LATHROP & GAGE LC 4845 PEARL EAST CIRCLE SUITE 300 BOULDER, CO 80301			ANDREA, BRIAN K	
			ART UNIT	PAPER NUMBER
			3662	

DATE MAILED: 06/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/632,735

Applicant(s)

CALDWELL ET AL.

Examiner

Brian K Andrea

Art Unit

3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/7/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5-10 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 5-10 all depend on claim 1 and specifically refer to lines 12-13 of claim 1 which reads "... the air parameters selected from the group of air speed, pressure, temperature and aircraft orientation angle." This claim language requires only one of the parameters to be selected, not a specific parameter or even all of the parameters. However, claims 5-10 assume that a specific parameter has been selected when in actuality that specific parameter is not required. If the parameter that the claim is not referring to is not selected in the independent claim, these claims are not understandable.

Claim 22 is rejected for a similar problem; namely, the claim depends ultimately on claim 20 which offers a choice of two filters and does not necessarily require the filter that is required in claim 22.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 3662

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 11-21, and 23-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimizu (reference "U" on the PTO-892 form accompanying this Office Action).

With regard to claims 1, 4, 18 and 19, Shimizu teaches a method for remotely sensing air outside a moving aircraft, comprising: projecting laser radiation into the air to induce scattered radiation that has a molecular scattered radiation component and an aerosol scattered radiation component (see p.1373, 2nd column); detecting scattered laser radiation (see p.1373, 2nd column); distinguishing the molecular scattered laser radiation component from the aerosol scattered radiation component (see p.1373, 2nd column); and determining one or more air parameters based on the scattered radiation, the air parameters selected from the group of air speed, pressure, temperature and aircraft orientation angle (see p.1376).

With regard to claims 2 and 3, see pp.1376-77

With regard to claims 11 and 21, see p.1377, 2nd column.

With regard to claims 15, 16, 20 and 24, Shimizu teaches using an atomic vapor filter and further deconvolving the line shapes of the multiple signals using digital processing (see pp.1375-77).

With regard to claims 17 and 27, Shimizu teaches that the spectral lineshape of the scattered radiation is used to determine air pressure and temperature (see p.1373, 2nd column).

With regard to claim 26, the use of a transducer for converting laser radiation into electrical signals is inherent in the detection of laser radiation that is to be processed electrically.

5. Claims 28, 29 and 31-36 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,394,238 to Mocker et al. (hereinafter, "Mocker").

With regard to claim 28, Mocker teaches a transceiver comprising: beam steering optics for projecting laser energy to air (see lens directing light 18 out in figure); and a vapor filter 28 configured for filtering backscattered laser energy received from the air, wherein filtered backscattered laser energy is processable to determine one or more air parameters (see column 5, lines 28-30 and column 1, lines 7-20).

With regard to claim 29, Mocker teaches at least one detector 38 configured for receiving the filtered backscattered laser energy and for converting the filtered backscattered laser energy to electronic signals for use in determining the one or more air parameters (see column 4, lines 15-17).

With regard to claim 31, Mocker teaches the beam steering optics comprise an optical connector 74 configured for coupling to a laser generating the laser energy.

With regard to claim 32, Mocker inherently teaches a mount for mounting the transceiver within an aircraft (see column 1, lines 7-10).

With regard to claim 33, Mocker teaches that the beam steering optics comprise a lens (see figure).

With regard to claim 34, Mocker teaches that the air parameter measured is the air speed (see column 1, lines 7-10 – measures windshear).

With regard to claim 35, Mocker teaches that the vapor filter comprises a fixed frequency atomic vapor filter 28.

With regard to claim 36, Mocker teaches that the laser energy comprises a center frequency corresponding to a peak absorption frequency of the vapor filter (see column 1, lines 52-56).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 12-14 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu in view of Mocker.

With regard to claim 12, it is inherent that the center frequency of the vapor filter is matched to the center frequency of the laser because, if both devices are to be used, they must be matched in order to work together properly and accurately. Alternatively, Mocker teaches the technique for matching the laser with the filter's center frequency and it would have been obvious for Shimizu to utilize this technique to maintain the lock of the laser and the filter to ensure that the system is accurately making measurements.

With regard to claims 13, 14 and 25, Shimizu is silent on the optics used for guiding light into the atmosphere. However, the use of optical fibers, mirrors, and lenses are well known in the art and would have been obvious to use in the system taught by Shimizu.

Shimizu is also silent on the use of the device on an aircraft, teaching only that it can be used on a balloon 1.5 meters off the ground. However, Mocker teaches that a transceiver such as the system taught by Shimizu may be mounted on an aircraft and used to measure the windshear and other parameters of the air surrounding the aircraft. Further, neither Shimizu nor Mocker teach the use of multiple transceivers. However, it would have been obvious use more than one transceiver on the airplane to measure the air in multiple locations since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

With regard to claim 23, Shimizu teaches the use of a laser with a wavelength of approximately 537 nm (see p.1377) and does not teach the use of a laser with a wavelength in the range of 254 nm to 355 nm. However, 537 is very close to this range and, if it would not meet the claim language requiring that the wavelength was in the range of "about" 254 nm to 355 nm, it would have been obvious to use a shorter wavelength because this is merely a matter of design choice. Any suitable wavelength laser could be substituted into the system taught by Shimizu without hindering the operation of the system.

8. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mocker.

Mocker does not teach a plurality of mirrors configured for directing the laser energy through the vapor filter 28. However, the system uses mirrors, beamsplitters, and lenses elsewhere in the system and, if space restraints required, it would have

Art Unit: 3662

been obvious to use any combination of optical devices for directing the laser energy through the vapor filter 28.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kremer (U.S. Patent No. 5,267,010) teaches the detection of both molecular and aerosol scattered light in a lidar system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K Andrea whose telephone number is (703) 605-4245. The examiner can normally be reached on M-F 7:00-3:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (703) 306-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BKA

BKA

16 June 2004


BERNARR E. GREGORY
PRIMARY EXAMINER
A.U. 3662